Newsletter of the National Biological Information Infrastructure

nbii Access

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Renewable Energy Project (RENEW) Now Available Online

Photo credit: U.S. Geological Survey

Geothermal power plant, Santa Rosa, CA

On October 4, 2010, the National Biological Information Infrastructure (NBII) launched the Renewable Energy Project (RENEW) Web site. RENEW focuses on scientific information related to renewable energy sources and their interaction with wildlife and the environment. RENEW was proposed in 2009 under direction from the NBII and completed in 2010 as a joint venture between Montana State University's Big Sky Institute (BSI) and the NBII. The mission of RENEW is to integrate and provide access to objective, accurate information about renewable energy and the environment for a broad user community of resource managers, scientists, educators, and the general public. This two-fold mission is accomplished by providing online access to information resources through the RENEW Web site <www.nbii.gov/renew/> and by bringing together a variety of data and information into one organized, coherent Web site.

The RENEW Web site contains information organized into the following sections:

- **Live Maps and Data** provides access to NBII partner projects relating to renewable energy information, maps, and data, as well as access to other featured renewable energy resources. The NBII partner projects highlighted in this section are (1) the Biogeographic Information & Observation System (BIOS) Renewable Energy Viewer <http://bios.dfg.ca.gov>, a Web-based mapping application in which users can explore renewable

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Raptor Gains Honorable Mention in Government Computer News (GCN) Award Competition

Raptor, the new search engine of the USGS-National Biological Information Infrastructure (NBII), has been recognized and honored as one of ten 2010 Honorable Mention Winners in the 23rd Annual *Government Computer News* Awards for Outstanding Information Technology Achievement in Government.

Winners of the prestigious GCN awards are announced annually by *Government Computer News*, the online authority for government IT professionals. The award recognizes outstanding government agency IT achievement. In particular, it gives visibility to agency IT teams whose innovation or achievements using technology during the past 12 months have made a significant impact on the performance of their agencies or the services they provide. The award is based on group performance rather than the accomplishment of a single individual.

"We developed Raptor to meet the needs of a broad NBII user base," said Tim Woods, the NBII Project Manager who headed the Raptor development team. All team members are part of the USGS Biological Informatics Program, which also serves as the NBII National Program Office.

"I'm pleased that Raptor was recognized for its ability to integrate sophisticated content processing, searching, and visualizations to support the biological information and data

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In This Issue

Partners in the Spotlight

"Partners in the Spotlight" highlights activities and contributions of a wide range of NBII partners. In this issue of Access*, we're pleased to look at BioOne, an innovative collaboration among not-for-profit society publishers, research libraries, and academic institutions. If you're interested in producing a similar article about your organization, please contact Ron Sepic,* Access *Editor, at <ron_sepic@usgs.gov>.*

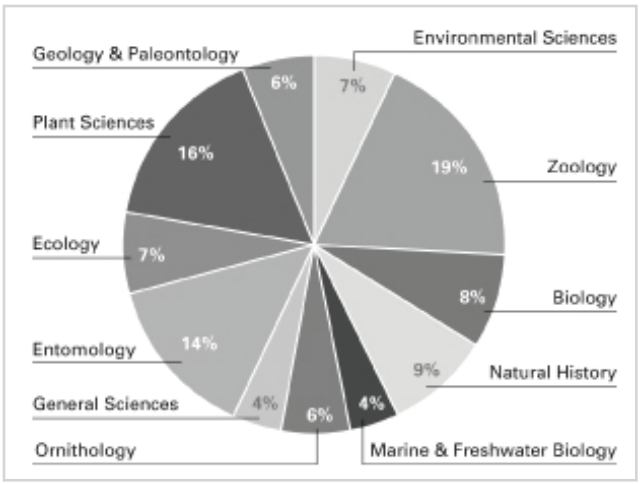
BioOne and the NBII: An Idea Whose Time Has Come

The background of the National Biological Information Infrastructure (NBII) has often been mentioned in the pages of *Access*. Established in 1994 by the U.S. Department of the Interior and coordinated since 1996 by the U.S. Geological Survey (USGS) Biological Informatics Office (BIO), the NBII is a collaborative, Web-based initiative that links biological databases and other relevant resources drawn from government agencies, academic institutions, private industry, non-government organizations, and other partners. Resource managers, scientists, educators, and the general public use the NBII to answer a wide range of questions related to the management, use, or conservation of this nation's biological resources.

Some might ask how the NBII accounts for its success. Perhaps the main method is epitomized by an early NBII slogan, "Building Knowledge Through Partnerships," as well as the name of this regular *Access* column, "Partners in the Spotlight." While the USGS coordinates all NBII activities, without its partners, the NBII could only offer a small slice of the biological data and information to which it currently provides access.

One of the newest organizations to join the ranks of NBII partners is BioOne <www.bioone.org>, a full-text database of 166 publications in the biological, ecological, and environmental sciences. BioOne provides a valuable aggregation of core scientific research to scientists, educators, and students around the world.

BioOne Collections' Areas of Coverage



The BioOne-NBII partnership is a logical fit and is already under way. BioOne is providing the NBII with full access to its valuable aggregation of core bioscience research. Today the NBII is busy incorporating this critical input into Raptor, its search engine. In the very near future, when NBII users do a Raptor search, they may well see resources found in BioOne along with other NBII biological content. What's more, the BioOne database includes Open Access articles (freely available without a subscription) that are identified with the orange OA icon. In addition, all NBII users will have access to BioOne bibliographic citations as well as its extensive

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USGS

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Be sure to check out *Access* online at <www.nbii.gov>→ Publications Library.

Please direct your general questions about the NBII, including partnership opportunities, to:
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Visit the NBII Home Page at <www.nbii.gov>.

Renewable Energy Project (continued from page 1)

energy development in California's Mojave and Colorado Desert regions; and (2) the Oak Ridge National Laboratory (ORNL) Wind Energy Data and Information Gateway <http://windenergy.ornl.gov>, which provides wind energy metadata, data access, and a Web-based mapping application.

- **Renewable Energy and the Environment** is a comprehensive resource about renewable energy sources and their potential interactions with ecological topics such as bird conservation, climate change, fisheries and aquatic resources, genetic diversity, habitat impacts, invasive species, and pollinators. The section provides general information, highlights of specific issues, and links to external Web resources organized by topic.
- **Renewable Energy by Region** describes the distribution of renewable energy potential and sources throughout the United States and provides access to additional resources for exploring renewable energy by geographic region.
- **Renewable Energy News** gives users access to cutting-edge news about renewable energy research, development, issues, trends, and policy.
- **Renewable Energy Sources** provides general information and access to additional resources about the main types of renewable energy, including biofuels, geothermal energy, hydropower, solar energy, and wind energy.

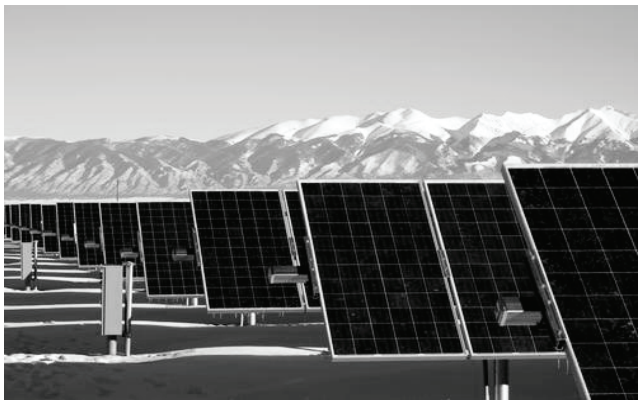


Photo credit: National Renewable Energy Lab

Solar panels, Alamosa Photovoltaic Plant

As the lead partner of RENEW, BSI works jointly with the NBII to disseminate information and to create value-added tools for interacting with data. BSI is an interdisciplinary center dedicated to creating, applying, and communicating science-based knowledge. The BSI Ecological Informatics Lab brings together natural sciences, geographic information systems (GIS), statistics, modeling, information technology, and computational programming with a comprehensive goal of making ecological data more useful to society. In leading this joint venture, BSI has researched and created renewable energy content, coordinated content review and input from NBII staff, and developed and maintained the Project Web site.

For more information, contact Julie Prior-Magee, RENEW Project Manager, at <jpmagee@usgs.gov>. Find us on the Web at <www.nbii.gov/renew/>.

Raptor Gains Honorable Mention in Goverment Computer News Award (continued from page 1)

wildlife and land managers, citizen scientists, students, and the general public," added Woods.

Among its many other attributes, Raptor enables geospatial searching. Users can specify a geographic area and search terms for their search. The geographic area is specified through the use of a "bounding box," which can cover from a few acres to the entire planet.

Over the years, the GCN Awards have come to symbolize some of the best and most notable IT accomplishments in advancing the work of government agencies. This year's winning projects were selected from nearly 100 nominations submitted to GCN, based on the degree to which a given IT project improved an agency's ability to operate more efficiently or serve the public more effectively. A distinguished panel of judges made up of current and former government IT officials also looked for innovation and technology leadership in selecting this year's winners.

Photo credit: Anil Karmel

Left to right: Ron Sepic, Hugh O'Connor, and Tim Woods represented the USGS-NBII at the 2010 GCN Awards dinner on October 27.

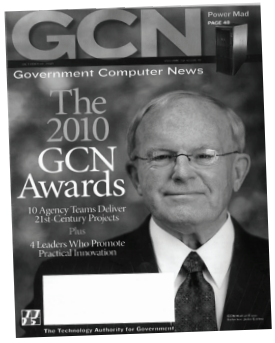
All of the GCN winners were featured in a special report in the October 18, 2010, issue of *Government Computer News*.

The NBII Raptor team was formally honored with other GCN Awards winners at a gala event on October 27, 2010, at the Ritz-Carlton, Tysons Corner, in McLean, VA.

The NBII is a broad, collaborative program to provide increased access to data and information on the nation's biological resources.

NBII In the News

- The NBII has appeared twice recently in the pages of *Government Computer News*. The July 29, 2010, edition had an article titled, "2 ways to improve collaboration." It talked about customized search tools and internal portals that help bridge cross-agency gaps. Mike Frame, technical director of the NBII, was interviewed and quoted for his perspective on these important topics. Frame talked about ways of improving collaboration and information sharing across government departments and agencies (see <http://gcn.com/articles/2010/08/02/collaboration-tools-usgs-doe.aspx>). He mentioned the Center for Biological Inframatics, which supports the hardware and software infrastructure for the NBII and other programs coordinated by the USGS Biological Informatics Program. As for the second NBII mention, the October 18, 2010, edition



of *Government Computer News* (see above) talked about the 2010 GNC Awards and featured an article on "10 More Projects of Note." In it, Raptor, the new NBII search engine, was highlighted to receive Honorable Mention in the competition.
- In an article in *National Parks Traveler* titled "Virgin Islands National Park Battered by Earl, But OK. Capes Lookout and Hatteras Up Next," a photo available through the NBII *L*ibrary of *I*mages *F*rom the *E*nvironment (LIFE) showed the park's visitor center in good weather (see <http://www.nationalparkstraveler.com/2010/08/virgin-islands-national-park-battered-earl-ok-capes-lookout-and-hatteras-next6498>).
- NBII LIFE was noted in an opinion article appearing in a recent issue of *Genetic Engineering Biotechnology News*. The article referred to LIFE as among the Best of the Web and called LIFE "a wonderful window to the world around us, highlighting plants, animals, and well, LIFE in general." The article also gave LIFE its highest rating, 4 stars, and zero weak points. See <www.genengnews.com/best-of-the-web/nbii-life/2529/>.
- And speaking of LIFE, a photo of a snowy egret available through LIFE appeared in the *Knoxnews.com* of September 5, 2010, in an article titled "Golden 'slippers' ID snowy egret." See <http://www.knoxnews.com/news/2010/sep/05/golden-slippers-id-snowy-egret/?partner=RSS>.

"Partners in the Spotlight" (continued from page 2)

abstracts. As for BioOne's subscription-based materials, users from BioOne subscribing institutions will have full-text access.

BioOne began in 1999 as the collaborative product of five stakeholder organizations: the Scholarly Publishing & Academic Resources Coalition (SPARC), American Institute of Biological Sciences (AIBS), The University of Kansas, Greater Western Library Alliance (GWLA), and Allen Press, Inc. Developed in response to the rising subscription costs of scientific journals produced by commercial publishers, BioOne was created to ensure sustainable access to critical scientific content. This included helping society publishers transition from print to electronic delivery while maintaining their financial and editorial independence. Eleven years later, BioOne is a proven concept and one of the most successful library publishing projects to date. It became an NBII partner in June 2010.

Today, from its headquarters in Washington, DC, BioOne continues to explore economic models and strategic partnerships that maximize access to critical research and balance the needs of all scholarly communication stakeholders — authors, scientific societies, academic institutions, research libraries, and research funders. Founding organizations SPARC, AIBS, The University of Kansas, GWLA, and Allen Press carry on as critical partners in this collaborative endeavor.

We invite NBII users to do a Raptor search on any topic within BioOne's core subject areas.

Questions or comments? Just contact the NBII's Hugh O'Connor at <hoconnor@usgs.gov>.

Mexico Invites USGS Scientist for Keynote Address at Invasive Species Strategy Event

Annie Simpson (far left) prepares to deliver her keynote address.

USGS-NBII Invasive Species Information Node Manager Annie Simpson was invited by the Mexican government's National Commission for the Knowledge and Use of Biodiversity, CONABIO, to be the keynote speaker during the presentation of the *National Strategy on Invasive Species for Mexico: Prevention, Control, and Eradication*. The Strategy is a result of two years' work by Mexican experts from academia, government, and non-governmental organizations, and consists of a series of guidelines to address the problems caused by invasive species, one of the biggest threats to biodiversity in this "megadiverse" country.

At the event, Ms. Simpson addressed the costs of biological invasions, the importance of prevention, and gave examples of international collaboration for a more effective response. Ms. Simpson stated that although estimates of the economic impact of invasive species are difficult to calculate, one global study (Pimentel et al. 2001), based on extensive data from six countries (United States, United Kingdom, Australia, South Africa, India, and Brazil) estimated that the per capita cost incurred due to biological invasions was $240 per person per year. This extrapolates to 5 percent of the global economy or 1.4 trillion U.S. dollars per year. That is equivalent to ten times the gross national product of Mexico in 2009. In Mexico alone, it is estimated that the economic impact of the invasive armored catfish (popular species in home aquaria) on the fisheries industry is approximately 16 million U.S. dollars per year.

In her closing words, Ms. Simpson quoted Edward O. Wilson: "Extinction by habitat destruction is like death in an automobile accident: easy to see and assess. Extinction by the invasion of exotic species is like death by disease: gradual, insidious, requiring scientific methods to diagnose."

The presentation of the Mexican Invasive Species Strategy was also attended by the Minister of the Environment and Natural Resources, Juan Rafael Elvira Quesada, who announced his intention to request that the Congress of Mexico approve a budget to eradicate invasive species from Mexican ecosystems. Minister Elvira said, "All of us should make a commitment to develop programs for the control of invasive species, because the problem affects agricultural crops and livestock, tourism, and forestry." There are several invasive species of common interest to both Mexico and the United States and subject to bilateral cooperation, such as: cactus moth (*Cactoblastis cactorum*), tamarisk (*Tamarix ramosissima*), quagga and zebra mussels (*Corbicula and Dreissena spp.*), hydrilla (*Hydrilla verticillata*), lionfish (*Pterois volitans*), and Plecos catfish (*Hypostomus spp.*).

After the event, Ms. Simpson was interviewed by Mexico's Channel 11 News about the economic impact of invasive species and the importance of international cooperation to successful invasive species prevention and control.

The Strategy is available online at <www.conabio.gob.mx/institucion/Doc/Estrategia_Invasoras_Mex.pdf>; the English version begins on page 93. A complete English version will soon be available for download from <www.conabio.gob.mx/invasoras>.

Reference:

Pimentel, David, S. McNair, J. Janecka, J. Wightman, C. Simmonds, C. O'Connell, E. Wong, L. Russel, J. Zern, T. Aquino and T. Tsomondo. 2001. Economic and environmental threats of alien plant, animal, and microbe invasions. Agriculture, Ecosystems & Environment. 84:1 (March) p.1-20.

Invasive Species Toolbox

The Toolbox is a collection of useful items and highlights related to invasive species information management issues. Please send any suggestions you might have for columns to <asimpson@usgs.gov> or <esellers@usgs.gov>.

Invasive Plant Atlas of New England (IPANE) Releases New Species Map Tool

A newly-developed IPANE map tool allows users to explore the locations of selected invasive species common in New England, and includes a layer of USGS quad maps to track the status of citizen science volunteer work in various locations. Data used for species locations include field data and herbarium specimens collected by IPANE volunteers and volunteers from cooperating state and local programs.

The map tool can be accessed from the home page of the IPANE Web site <http://www.ipane.org> or from the IPANE species page <http://www.ipane.org/ipanespecies/ipanespeciesmapper.htm>.

The Center for International Earth Science Information Network <http://www.ciesin.org>, which hosts and develops the IPANE and the NBII Northeast Information Node (NIN) <http://nin.nbii.gov> Web sites, has also completed revisions of data input interfaces for a new IPANE data input application that will be used by volunteers to enter their invasive plant data to the system via the Web. For more information, contact Dr. Les Mehrhoff at <Les.Mehrhoff@uconn.edu>.

USGS Nonindigenous Aquatic Species Database Alert System: Five Years and Going Strong

Invasive Species Information Node (ISIN) partners at the USGS Southeast Ecological Science Center in Gainesville <http://fl.biology.usgs.gov>, developers of the Nonindigenous Aquatic Species (NAS) database <http://nas.er.usgs.gov>, track the distribution of introduced aquatic organisms across the United States. In May 2004, the program developed an Alert System to notify registered users of new introductions as part of a national early detection/rapid response system.

Users register to receive alerts based on geographic or taxonomic criteria. At the September 2010 meeting of the NBII Invasive Species Working Group <www.nbii.gov/portal/server.pt/community/working_group/>, NAS manager and NBII partner Pam Fuller summarized the NAS alert system's users and alerts by geography, taxonomy, year, alert level, and source of information. To sign up for the NAS Alert System, visit <http://nas.er.usgs.gov/AlertSystem/register.aspx>.

ISIN Partners at USGS Fort Collins Science Center and Colorado State University Improve Web Site

The Global Invasive Species Information Network (GISIN) portal for sharing invasive species information <http://www.gisin.org> has a new look and feel and now includes species maps that display consolidated country-level distributions and included data sources. The GISIN List of invasive species information systems on the Web <http://www.gisin.org/gisinlist.htm> is now searchable and sortable, and is continually updated. The beta version of the GISIN data portal has maps and species lists that are accessible in the "Browse Information" menu. For example, see the page for *Rattus norvegicus*, the brown rat, here: <www.gisin.org/cwis438/Websites/GISINDirectory/GISIN_ScientificName_Info.php?GISIN_ScientificNameID=719&WebSiteID=4>.

Cactus Moth Detection and Monitoring Network Continues to Grow

The cactus moth (*Cactoblasis cactorum*) is best known as a biocontrol species whose larvae eat and decimate invasive cactus in Australia and Africa, where cactus is nonnative and invasive. However, this moth, which is native to South America, entered the United States in the early 1990s and now poses a very serious ecological threat to all 63 native flat pad prickly pear cacti (*Opuntia* spp.) in North America, where several Opuntia cacti are rare and endangered and many others are used in landscaping.

The cactus moth is also an economic threat to Mexico, where prickly pear cacti are grown as a fresh vegetable and livestock feed. The cactus moth is spreading westward in the southern United States naturally at a rate of about 100 miles per year and has already reached Gulf Coast barrier islands off of Louisiana.

ISIN partners at Mississippi State University (MSU) have established a National Cactus Moth Early Detection and Monitoring Network <http://www.gri.msstate.edu/research/cmdmn> in cooperation with the U.S. Department of Agriculture. In June and July 2010, cactus moth host plants of various *Opuntia* species were mapped between Los Angeles, Corpus Christi, Brownsville, and southern Louisiana. Fortunately, cactus moth larvae were not found during these surveys performed to the west of its known range, and more than 1,000 host plant reports were collected.

Global Biodiversity Information Facility Holds 17th Governing Board Meeting

Dr. Joanne Daly, Chair of the GBIF Governing Board, and Kim Moon-Soo, Governor of Gyeonggi Province, South Korea, present the Suwon Declaration, underlining the importance of the GBIF network to governments and its relevance to science, conservation, and sustainability.

Suwon City, South Korea, played host to the Global Biodiversity Information Facility's (GBIF) 17th meeting of its Governing Board (GB17) October 12-14, 2010. Attendees from over 40 nations reviewed GBIF's progress in 2009–10, negotiated a new Memorandum of Understanding to organize and fund the network in the future, and discussed the strategic direction for GBIF's next phase, running from 2012 to 2017.

Dr. Joann Roskoski of the National Science Foundation served as Head of Delegation for the United States. USGS employees Dr. Mark Fornwall and Ben Wheeler supported Dr. Roskoski on the U.S. delegation. Dr. Fornwall also represented the Pacific Biodiversity Information Forum.

NBII is the U.S. Node to GBIF and supports U.S. data providers in their efforts to share and utilize biological information with partner institutions throughout the world. The NBII facilitates and participates in the development of a common set of standards to ensure that the retrieval and exchange of information can take place across political, linguistic, and institutional boundaries.

The broader GBIF network provides access to over 216 million biological records from institutions around the world. GBIF is also the leading provider of primary biological information and focuses on three primary activities:

- **An information infrastructure:** An Internet-based index of globally distributed interoperable databases that contain primary biodiversity data – information on museum specimens, field observations of plants and animals in nature, and results from experiments – so that data holders across the world can access and share them;
- **Community-developed tools, standards, and protocols:** The tools data providers need to format and share their data; and
- **Capacity-building:** The training, access to international experts, and mentoring programs that national and regional institutions need to become part of a decentralized network of biodiversity information facilities.

During GB17, GBIF also highlighted scientific usage and application of the data made available through the network at its 8th annual Science Symposium. With the Korean Demilitarized Zone (DMZ) serving as a vivid reminder of the effects of political boundaries on conservation, the theme of the symposium was "Trans-boundary Conservation Areas, Biodiversity Conservation and Peace Parks." Presenters focused on usage of GBIF data in international protected areas, conflict zones and former conflict zones, and offered presentations on the DMZ, the European Green Belt, and trans-boundary conservation efforts in Central America and South Asia.

Also at GB17, the GBIF Science Committee, which organizes the Science Symposium, awarded the Ebbe Nielsen prize to Dr. Sajeevan Ratnasingham of Canada for his groundbreaking work on the Barcode of Life Data Systems (BOLD). This prize honors the memory of Dr. Ebbe Nielsen, a founding visionary of GBIF, and is awarded annually to a promising researcher combining biosystematics and biological diversity informatics research to support the objectives of GBIF in an exciting and novel way.

For more information, please contact Mark Fornwall <mark_fornwall@usgs.gov> or Ben Wheeler bwheeler@usgs.gov.

Upcoming Events of NBII Interest

20th American Trails National Symposium, Chattanooga, TN. November 14–17, 2010

2010 U.S. Fish and Wildlife Service Southeast Regional Fire Management Workshop, Macon, GA. November 15–18, 2010

2010 Southern Appalachian Man and the Biosphere Conference, Gatlinburg, TN. November 16–18, 2010

Hawaii Early Detection Network "Eyes and Ears" Team Workshop, Volcano, HI. November 22, 2010

2010 National Ground Water Association Ground Water Expo, Las Vegas, NV. December 7–10, 2010

American Geophysical Union Fall Meeting, San Francisco, CA. December 13–17, 2010

Integrated Modeling to Characterize Climate Change Impacts and Support Decision Making, Atlanta, GA. February 1–2, 2011

Association of Field Ornithologists / Cooper Ornithological Society / Wilson Ornithological Society 2011 Meeting, Kearney, NE. March 9–13, 2011

Annual Meeting of the Waterbird Society / American Crane Working Group, Grand Island, NE. March 13–16, 2011

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